REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated May 3, 2006 (U.S. Patent Office Paper No. 200600429). In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

As outlined above, claims 1, 5, 7 – 10, 13, 14 and 16 – 23 are currently pending in this application, wherein claims 1, 5, 19, 20 and 23 are being amended to more particularly point out and distinctly claim the subject invention. All amendments to the claims are fully supported in the application. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

Prior Art Rejections

Under 35 USC § 103(a), the Examiner rejected claims 1, 5, 7-8, 13-14, 16, 18-20 and 23 as being unpatentable over Mullee (US Patent No. 6,206,564) in view of Vaarstra (US Patent No. 6,242,165) and Skee et al. (US Patent No. 5,989,353), as discussed on pages 5-7 of the Office Action. Further, he rejected claims 1, 5, 7-10, 16, 18-20 and 23 as being unpatentable over Mullee (WO 01/33613) in view of Vaarstra '165 and Skee '353, as set forth on pages 7-9. Even more, the Examiner rejected claims 1, 5, 7-10, 16, 18-20 and 23 as being unpatentable over Xu et al. (US Application No. 2003/0125225) in view of Skee '353.

Further, the Examiner rejected claims 21 and 22 under 35 USC §103(a) as being unpatentable over Mullee '564 or Mullee WO '613 in view of Vaarstra '165 and Skee '353, or Xu '225 and Skee '353, and further in view of McCullough et al. (US Patent No. 5,976,264).

Applicants have reviewed the above-outlined rejections, and hereby respectfully traverse. The present invention as now recited in claim 1 is directed to a composition for removing residues from the microstructure of an object comprising: carbon dioxide; an additive for removing the residues comprising a fluoride having a formula $NR_1R_2R_3R_4F$, where R_1, R_2, R_3, and R_4 are each independently an alkyl group, and a basic compound including a quaternary ammonium hydroxide; and a co-solvent for dissolving the additive in the CO_2 at a pressurized fluid condition, wherein at least the carbon dioxide is in a

supercritical state so as to maintain the composition combining the carbon dioxide, the additive and the co-solvent.

As now recited in claim 5, the present invention is directed to a composition for removing residues from the microstructure of an object comprising: carbon dioxide, a compound having a hydroxyl group, a fluoride having a formula $NR_1R_2R_3R_4F$, where R_1, R_2, R_3, and R_4 are each independently or an alkyl group, and a basic compound including a quaternary ammonium hydroxide, wherein at least the carbon dioxide is in a supercritical state so as to maintain the composition combining the carbon dioxide, the additive and the co-solvent.

In addition, the present invention as recited in claim 19 is directed to a composition for removing residues from the microstructure of an object comprising: carbon dioxide wherein the carbon dioxide is in a pressurized or a supercritical fluid state; an additive comprising a fluoride having a formula $NR_1R_2R_3R_4F$, where R_1, R_2, R_3, and R_4 are each independently an alkyl group, and mixtures thereof and a basic compound including a quaternary ammonium hydroxide; and a co-solvent selected from an alcohol, dimethylacetamide, propylene glycol, dimethylsulfoxide, deionized water, acetic acid, acetone, ethanol, propanol, dimethylformamide, N-methyl-2-pyrrolidone, diethylene glycol methyl ether, and mixtures thereof, wherein at least the carbon dioxide is in a supercritical state so as to maintain the composition combining the carbon dioxide, the additive and the co-solvent.

As recited in claim 20, the present invention is directed to a composition for removing residues from the microstructure of an object comprising: from 0.001 to 8 weight percent of an additive comprising a fluoride having a formula $NR_1R_2R_3R_4F$, where R_1, R_2, R_3, and R_4 are each independently an alkyl group, and mixtures thereof and a basic compound including a quaternary ammonium hydroxide; from 1 to 50 weight percent of a co-solvent selected from an alcohol, dimethylacetamide, propylene glycol, dimethylsulfoxide, deionized water, acetic acid, acetone, ethanol, propanol, dimethylformamide, N-methyl-2-pyrrolidone, diethylene glycol methyl ether, and mixtures thereof; and carbon dioxide, wherein at least the carbon dioxide is in a supercritical state so as to maintain the composition combining the carbon dioxide, the additive and the co-solvent.

Lastly, as recited in claim 23, the present invention is directed to a composition for removing residues from the microstructure of an object comprising: carbon dioxide; an additive for removing the residues comprising a fluoride having a formula $NR_1R_2R_3R_4F$,

where R_1, R_2, R_3, and R_4 are each independently a hydrogen or an alkyl group, and a quaternary ammonium hydroxide; and a co-solvent for dissolving the additive in the CO_2 at a pressurized fluid condition, wherein at least one the carbon dioxide is in a supercritical state so as to maintain the composition combining the carbon dioxide, the additive and the co-solvent.

Among the main features of the present invention, the invention is specifically directed to a composition of elements that are combined together so as to be applied to the microstructure intended to be cleaned as a single composition. In addition, the components are combined wherein at least the carbon dioxide is in a supercritical state so as to maintain the components together as a single composition. This aspect of the invention is supported throughout the specification including, but not limited to page 3, line 23 to page 4, line 2; page 4, line 30 to page 5, line 5; and page 6, line 16 to page 7, line 3.

Applicants have found that by having at least the carbon dioxide in a supercritical state and the additive and co-solvent in the specified proportions when the three components are combined, the components are maintained as a single composition. Otherwise, Applicants have found that the components are unable to remain together as a single composition as is apparent from the prior art.

In contrast, Mullee '564 discloses a process wherein each of the components is applied separately and/or sequentially (see Figure 3, column 3, line 20 to column 4, line 11). Thus, at no point in the process of Mullee '564 is there a composition that combines carbon dioxide, an additive and a co-solvent, as in the present invention. Rather, Applicants would contend the process disclosed and taught by this reference could not result in a composition as that disclosed and claimed for the present invention. Consequently, Mullee '564 by itself cannot render the present invention as claimed obvious to one of skill in the art.

Regarding Vaarstra '165 and Skee '353, Applicants will contend that neither of these secondary references provides any disclosure, teaching or suggestion that makes up for the deficiencies in Mullee '564 such that their combination could embody each and every feature of the present invention as claimed obvious to one of skill in the art. Applicants will point out that Vaarstra '165 does not involve any process or composition that includes the use of a solvent. Skee '353 does not involve the use of any supercritical components. To the extent these references are cited, their combination with Mullee '564 would still fall far short of rendering obvious each and every feature of the present invention as claimed obvious, since

their combination would still fail to show or suggest a composition of supercritical carbon dioxide, an additive and a co-solvent as that of the present invention.

Regarding Mullee ''613, this reference also does not show or suggest a composition that combines carbon dioxide, an additive and a co-solvent, as in the present invention. Instead, this reference involves a series of steps wherein components such as those of the present invention are used separately or sequentially. For example, as illustrated in Figure 6 and discussed on page 8, line 11 to page 9, line 16, the components such as carbon dioxide, an additive and a co-solvent are introduced are different times and for different purposes in the process.

Because of the deficiencies in Mullee '613, neither Vaarstra '165 nor Skee '353 provides any disclosure, teaching or suggestion that makes up for the deficiencies in Mullee '613 such that their combination could embody each and every feature of the present invention as claimed obvious to one of skill in the art. Again, to the extent these references are cited, their combination with Mullee '613 would still fall far short of rendering obvious each and every feature of the present invention as claimed obvious, since their combination would still fail to show or suggest a composition of supercritical carbon dioxide, an additive and a co-solvent as that of the present invention.

Regarding Xu '225, as noted by the Examiner in the Office Action, this reference does not teach or suggest the use of quaternary ammonium hydroxide or a cleaning composition containing carbon dioxide, an alkyl ammonium fluoride compound, a quaternary ammonium hydroxide, co-solvent and other components, as recited for the present invention. Skee '353, as noted above, does not provide any disclosure, teaching or suggestion that would make up for the deficiencies in Xu '225 as this reference does not involve the use of any components in a supercritical state. Applicants will contend that one of skill in the art would not be motivated to combine these references together since their combination would still suffer from the problems already known in the prior art. Specifically, the combination of materials and use of the materials known in the prior art as illustrated in the cited references shows that the teaching of Xu '225 could not be combined with that of Skee '353 to form a single composition that would be maintained together. There is simply no motivation to combine these references absent the Examiner's knowledge of the present invention.

Applicant will respectfully contend that the Examiner fails to establish a prima facie case of obviousness by properly bridging the proposed modification of the references necessary to arrive at the claimed subject matter (see MPEP §706.02(j)). It is well established

that the Examiner is not allowed to select bits and pieces from each reference, and then combining those bits and pieces using knowledge or hindsight gleaned from the disclosure of the present invention as a guide to support the combination. Rather, each prior art reference must be evaluated as an entirety, and all of the prior art must be considered as a whole," *Panduit Corp. v. Dennison Mfg. Co.*, 227 USPQ 337, 344 (Fed. Cir. 1985). See *Para-Ordinance Mfg, Inc. v. SGS Importers Intl.*, Inc., 73 F.3d 1085, 37 USPQ2d 1237 (Fed. Cir. 1995) ("Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor.").

As a result, the prior art cited cannot render any of the features of the claims invention obvious to one of skill in the art. The present invention as a whole is distinguishable and thereby allowable over the combination of these references.

Conclusion

In view of all the above, Applicant respectfully submits that certain clear and distinct differences as discussed exist between the present invention as now claimed and the prior art references upon which the rejections in the Office Action rely. These differences are more than sufficient that the present invention as now claimed would not have been anticipated nor rendered obvious given the prior art. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to

contact the Applicant's undersigned representative at the address and telephone number indicated below.

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